

FIG. 2

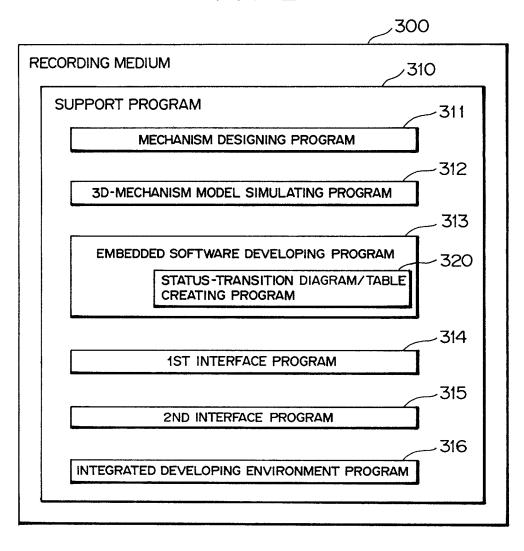


FIG. 3

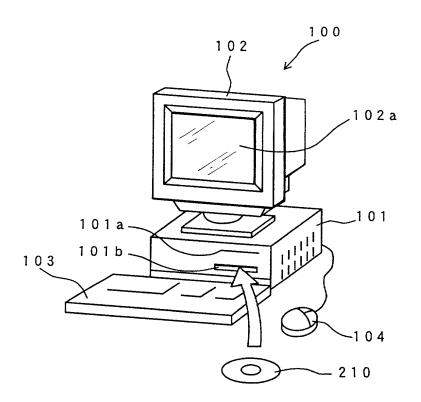


FIG. 4

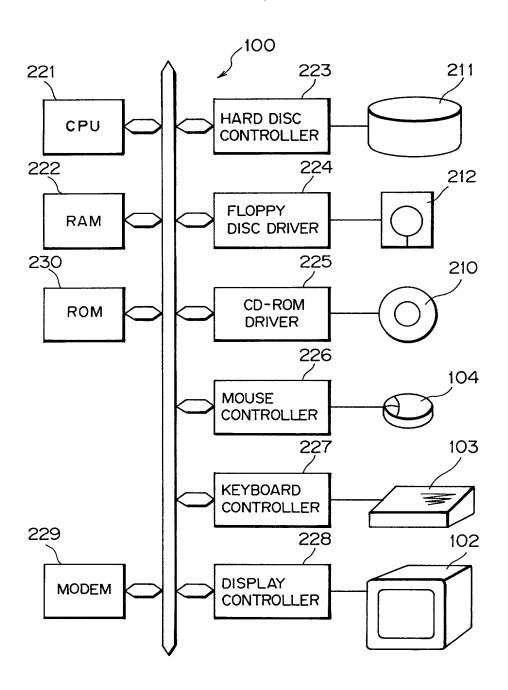
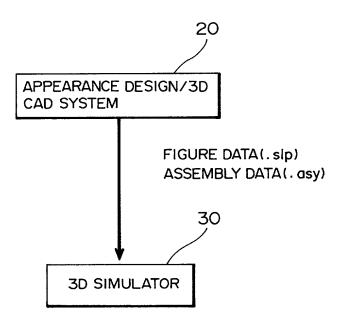


FIG. 5



## FIG. 6A

## FIG. 6B

```
SOLID KAM_VERSION2_O_LIBRARY1
  COLOR 1. 000000 0. 660000 0. 000000
  FACET
     NORMAL 0. 000000 0. 952236 -0. 305364
     NORMAL 0. 000000 0. 952236 -0. 305364
     NORMAL 0. 000000 0. 952236 -0. 305364
   OUTER LOOP
     VERTEX 46. 667969 -54. 467480 -31. 538586
     VERTEX 46. 667969 -57. 256718 -40. 236450
     VERTEX 16. 667969 -57. 256718 -40. 236450
   ENDLOOP
 ENDFACET
 FACET
     NORMAL 0.000000 0.952236 -0.305364
     NORMAL 0. 000000 0. 952236 -0. 305364
     NORMAL 0. 000000 0. 952236 -0. 305364
   OUTER LOOP
     VERTEX 16. 667969 -57. 256718 -40. 236450
     VERTEX 16. 667969 -54. 467480 -31. 538586
     VERTEX 46. 667969 -54. 467480 -31. 538586
   ENDLOOP
  ENDACET
 FACET
     NORMAL 0. 000000 - 0. 472754 0. 881194
     NORMAL 0.000000 - 0.472754 0.881194
     NORMAL 0. 000000 - 0. 472754 0. 881194
  OUTER LOOP
     VERTEX 91.667969 -77.803757 -26.071329
     VERTEX 91. 667969 -73. 224937 -23. 614828
     VERTEX 46. 667969 -73. 224937 -23. 614828
   ENDLOOP
 ENDFACET
 ENDSOLID KAM_VERSION2_O_LOBRARY1
```

```
BEGIN SPACE
# NO 1
 PARENT 0 # ROOT
 JOINTTYPE FREE
END
 BEGIN "SEAT_ASSY_O_LIBRARY1"
 # NO 2
 PARENT 1 # SPACE
 RELPOSITION 0. 000000 0. 000000 0. 000000
 RELATTITUDE 1. 000000 0. 000000 0. 000000 0. 000000
1. 000000 0. 000000 0. 000000 0. 000000 1. 000000
 JOINTTYPE FIXED
END
BEGIN "SEAT_PAN_O_LIBRARY1"
 # NO 3
 PARENT 2 # SEAT_ASSY_O_LIBRARY1
SHAPE SEAT_PAN_O_LIBRARY1. SLP
 RELPOSITION 1. 810953 51. 404652 450. 053009
 RELATTITUDE 1. 000000 0. 000000 0. 000000 0. 000000
1. 000000 0. 000000 0. 000000 0. 000000 1. 000000
 JOINTTYPE FIXED
END
BEGIN "KAM VERSION2 O LIBRARY1"
 # NO 4
 PARENT 2 # SEAT_ASSY_O_LIBRARY1
 SHAPE KAM VERSION2 O LIBRARY1. SLP
 RELPOSITION 201. 712204 -211. 475098 811. 809509
 RELATTITUDE 0. 104385 0. 034423 -0. 993941 0. 994522
-0. 009110 0. 104131 -0. 005471 -0. 999366 -0. 035185
 JOINTTYPE FIXED
END
```

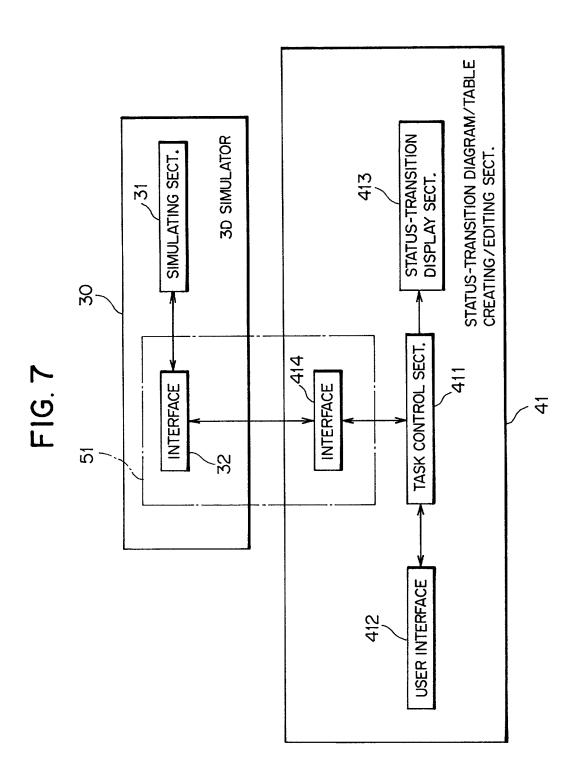
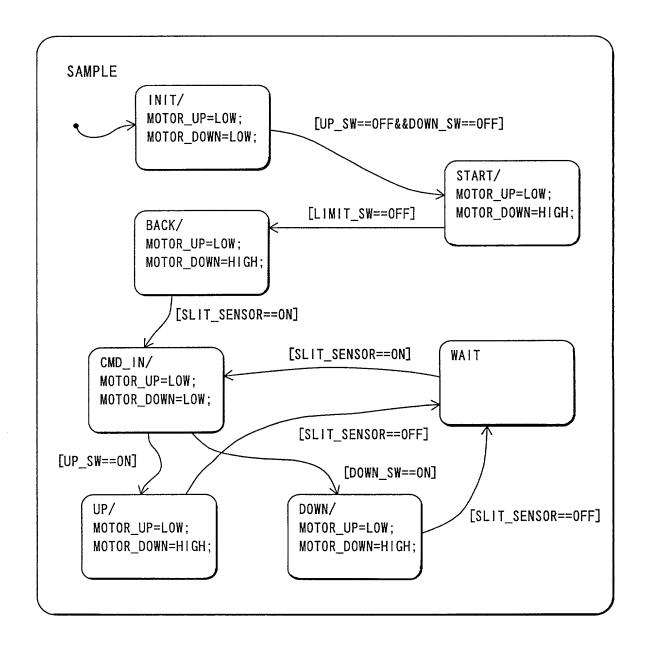
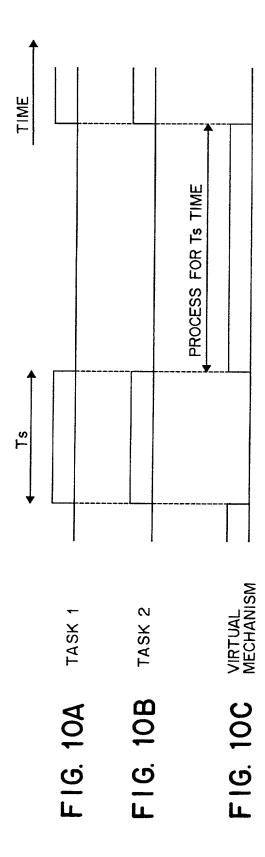


FIG. 8

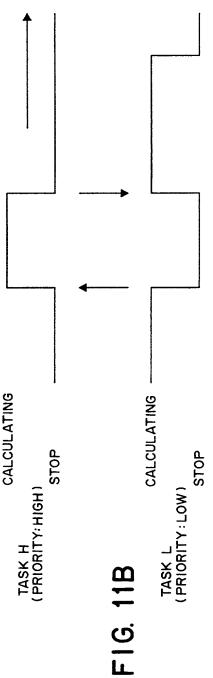


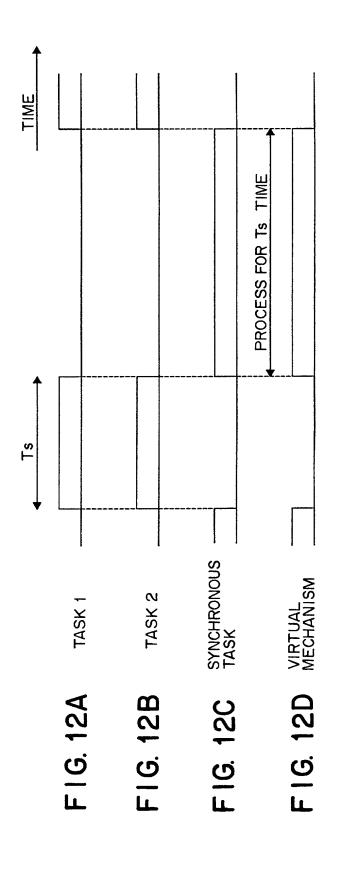
## F1G. 9

|             |        | STOPPING           | RUNNING STRAIGHT                      | CORNERING LEFT                          | CORNERING RIGHT                               |
|-------------|--------|--------------------|---------------------------------------|---|---|
|             | ω<br>ω | 0                  | 1                                     | 2                                       | ю   |
| SIGNAL_BLUE | 0      | 1<br>ACCELE ON (); |                                       |   | _   |
| LEFT CURVE  | -      | -                  | 2<br>ACCELE OFF();<br>TURN LEFT ();   | <br>TURN LEFT ();                       | 2<br>TURN LEFT ();                            |
| RIGHT CURVE | 8      |                    | 3<br>ACCELE OFF ();<br>TURN RIGHT (); | 3<br>TURN RIGHT();                      | 3<br>TURN RIGHT ();                           |
| STRAIGHT    | ю      |                    |                                       | 1<br>STEERING BACK ();<br>ACCELE ON (); | STEERING BACK (); ACCELE ON (); ACCELE ON (); |









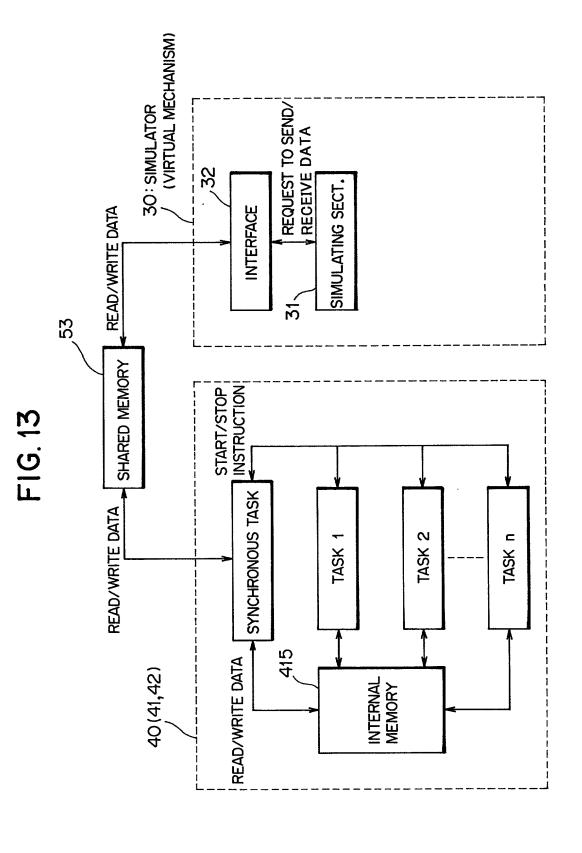


FIG. 14

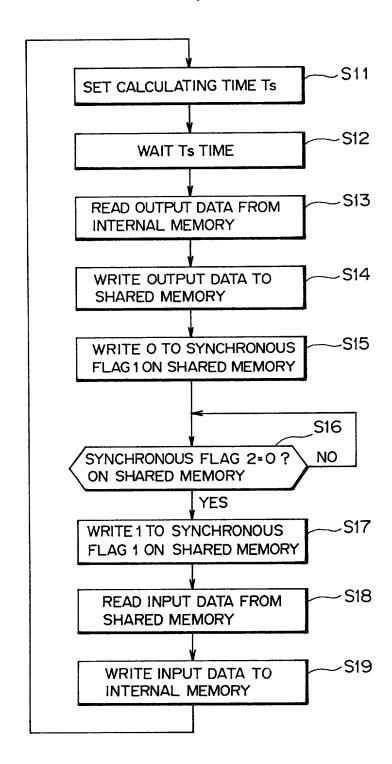


FIG. 15

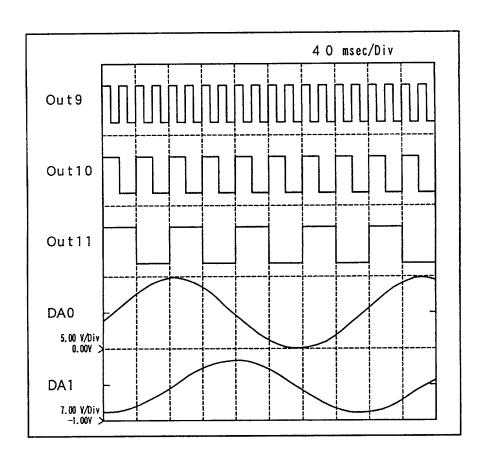
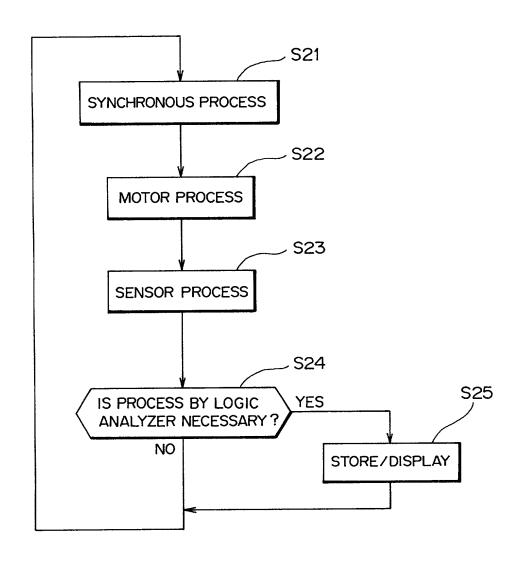
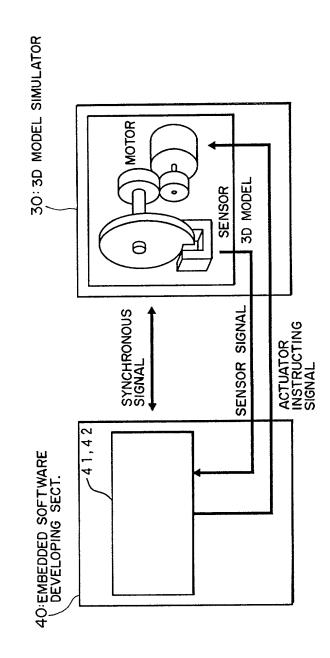


FIG. 16



F1G. 17



F I G. 18

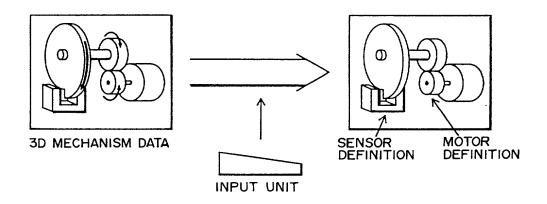
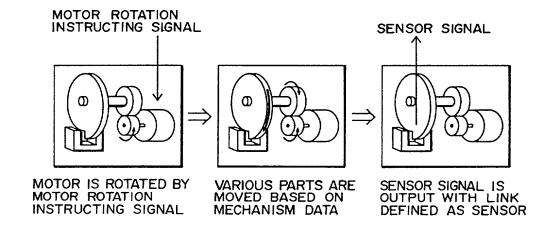
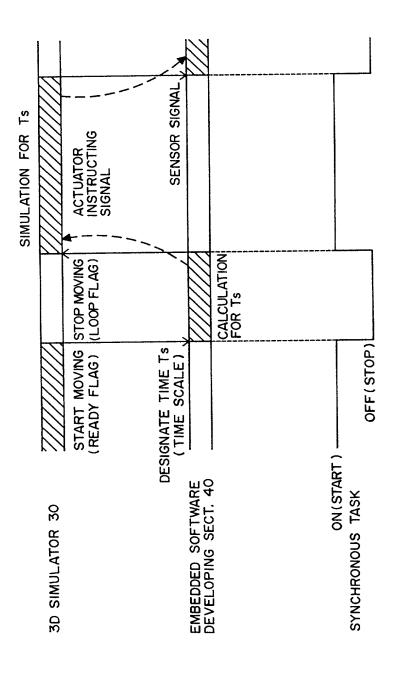


FIG. 19



F16. 20



F16.21

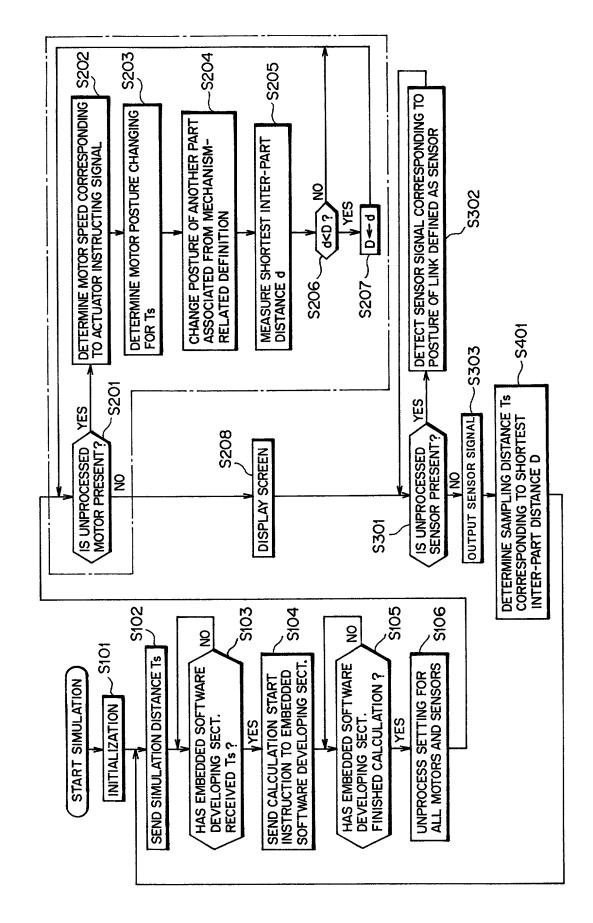
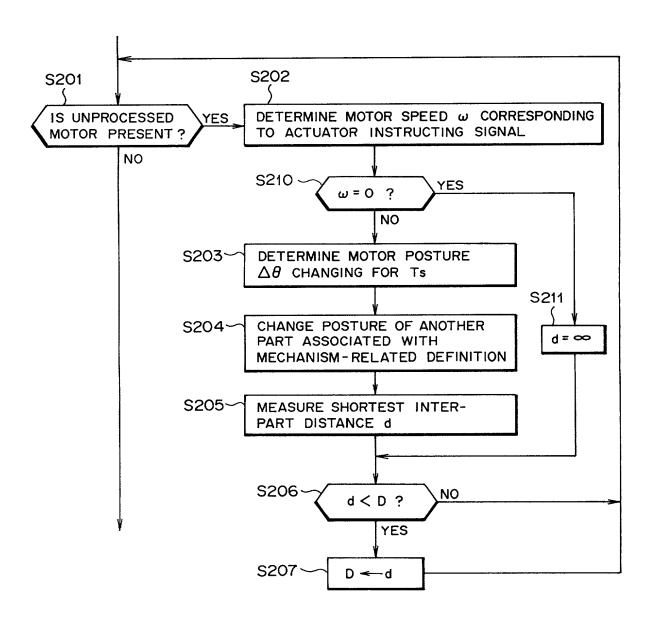
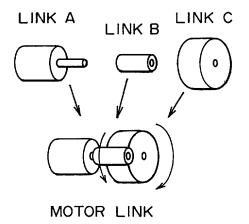
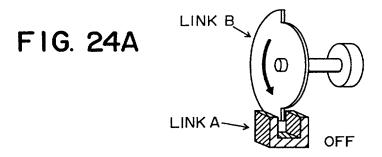


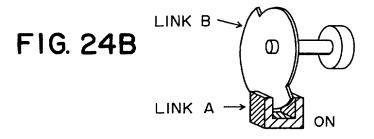
FIG.22

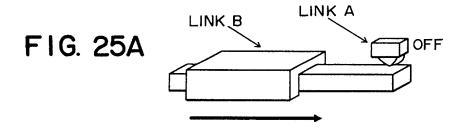


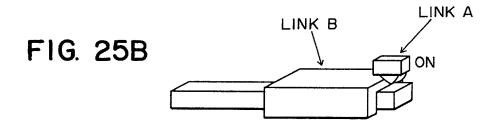
## FIG.23



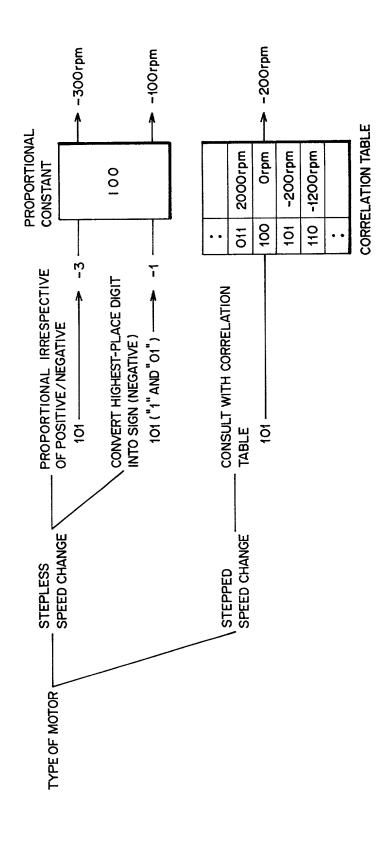




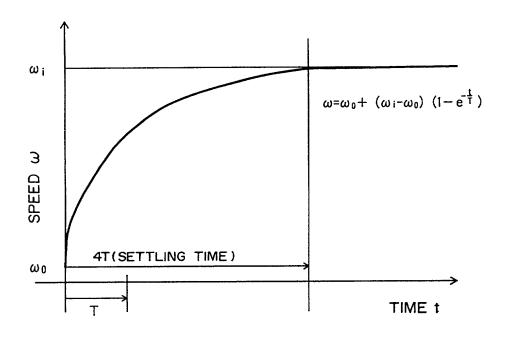




F1G. 26



F I G. 27



F16.28

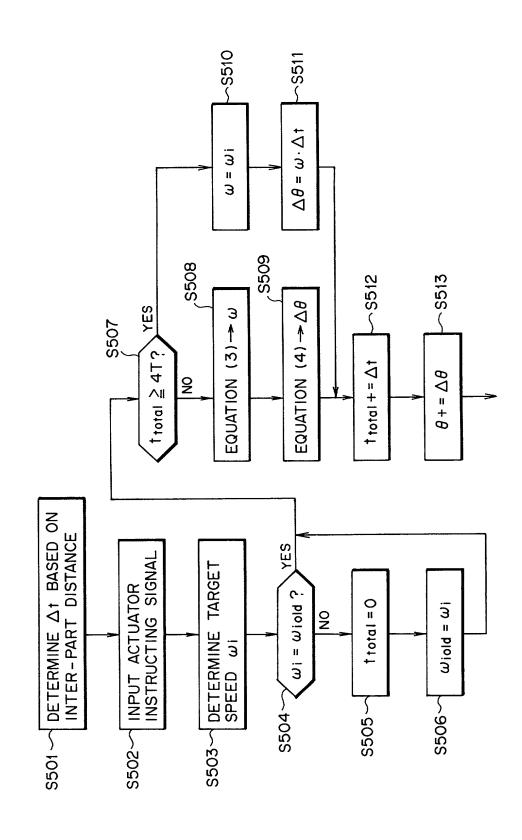


FIG. 29

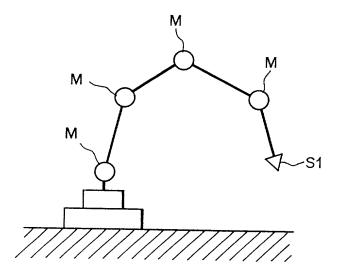
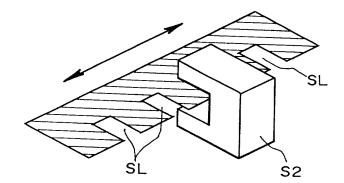


FIG. 30



INTERFERENCE F16. 310 25 VIRTUAL LINK F1G. 31B SZ, <u>K</u> -LIGHT BUNDLE F16. 31A

F16. 32

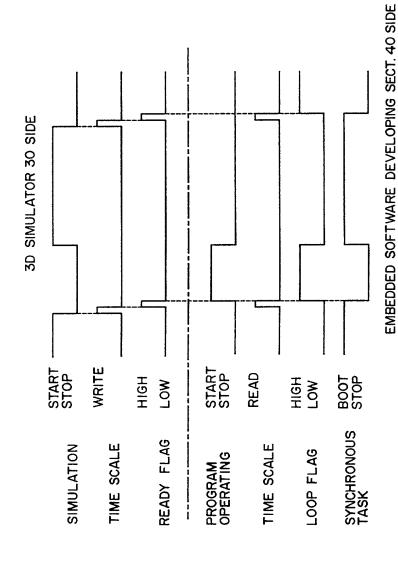


FIG. 33

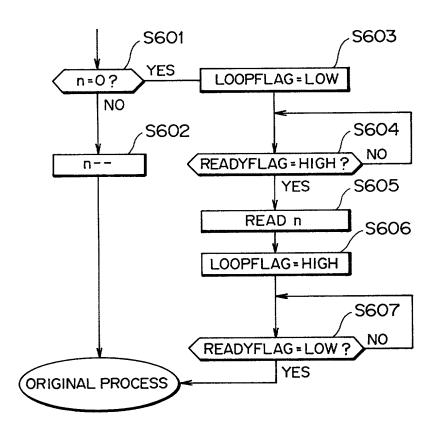
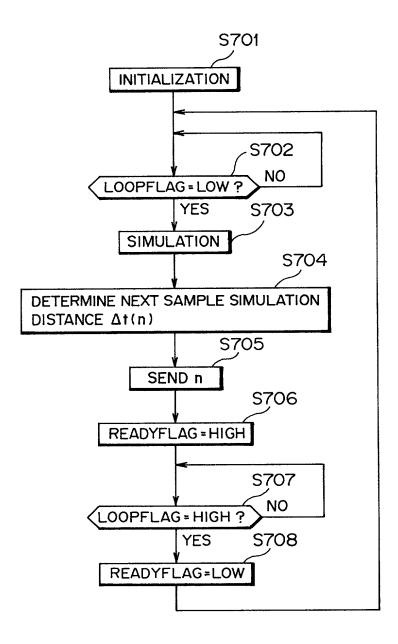
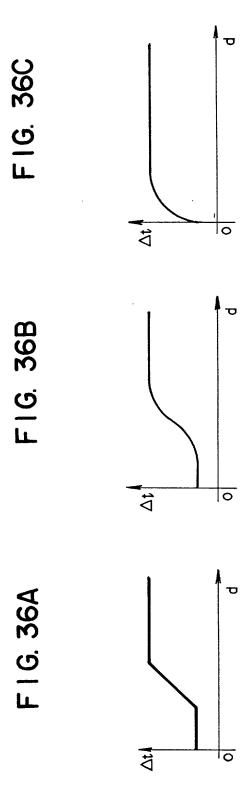


FIG. 34



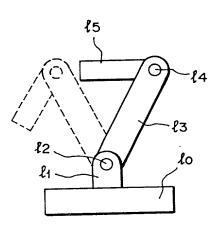
POSSIBILITY OF INTERFERENCE IS LARGE LINK B FIG. 35B LINK A VA† IS SMALL HIGH PRECISION LINK B At IS LARGE POSSIBILITY OF INTERFERENCE IS SMALL F16,35A LINK A HIGH

The first state first first first first first first first



F I G. 37A

FIG. 37B



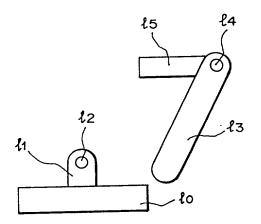
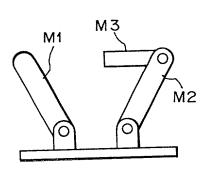


FIG. 38A

FIG. 38B



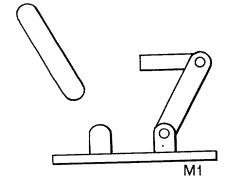
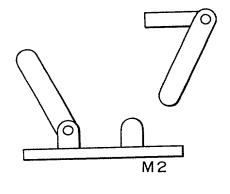
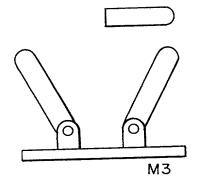


FIG. 38C

FIG. 38D





F16. 39

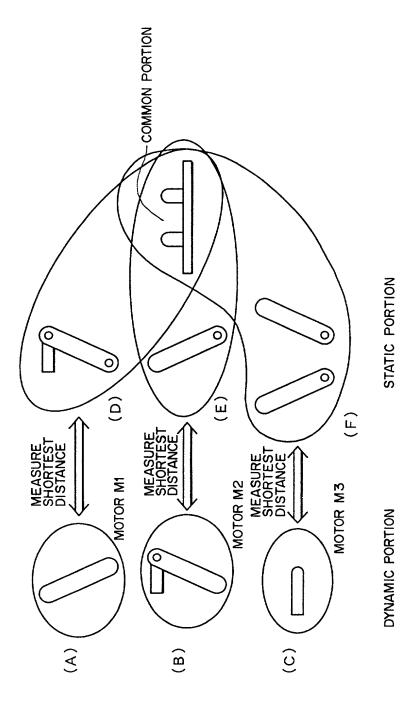
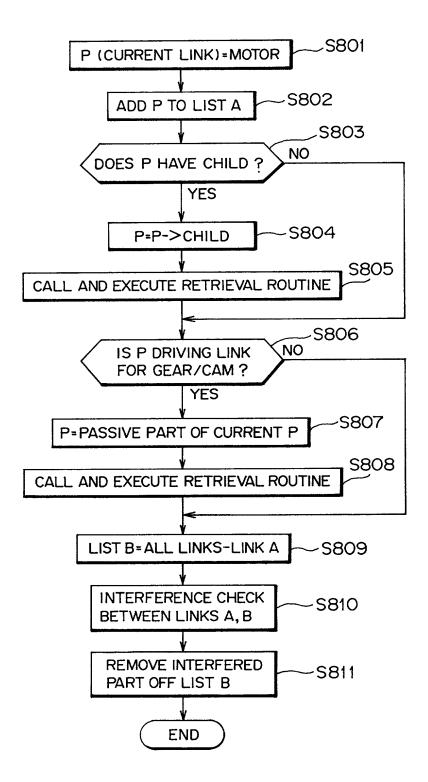
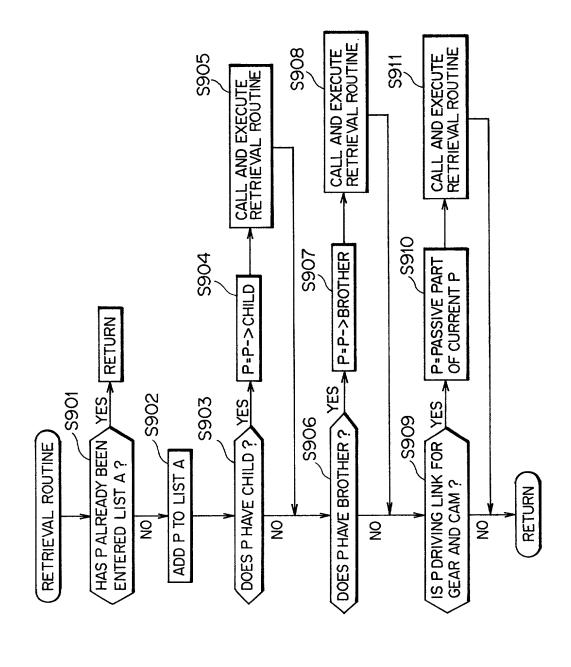


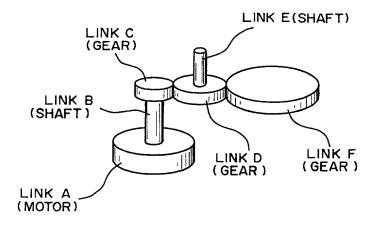
FIG. 40



F1G. 41



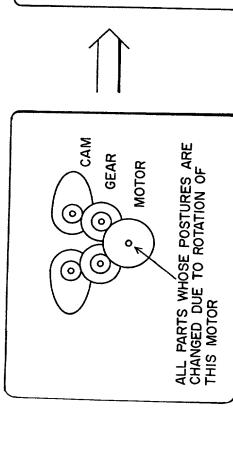
#### FIG. 42



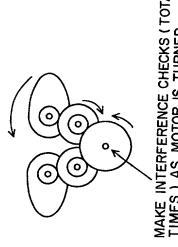
### FIG. 43

LINK F

## F1G. 44A



# F1G. 44B



MAKE INTERFERENCE CHECKS (TOTAL 11 TIMES) AS MOTOR IS TURNED INTERMITTENTLY BY PITCH OF 36° FROM -180° TO 180°

## F1G. 44D

| 1 | 7 |
|---|---|
|   |   |

Φ

Ш

LINK C AND LINK

=

LINK D AND LINK E

M

LINK A AND LINK C

N

A AND LINK B

LINK

F1G. 44C

4 =

AND LINK D

œ

LINK

LINK B AND LINK E

| 8                 | ю                 | 4                 |                   | 8                 |                   |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| LINK A AND LINK B | LINK A AND LINK C | LINK B AND LINK D | LINK B AND LINK E | LINK C AND LINK E | LINK D AND LINK E |

EXCLUDE, FROM LIST, SETS WHOSE PARTS INTERFERED IN ALL INTERFERENCE CHECKS

SETS OF INTERFERED PARTS, AND FREQUENCY OF INTERFERENCE

FIG. 45

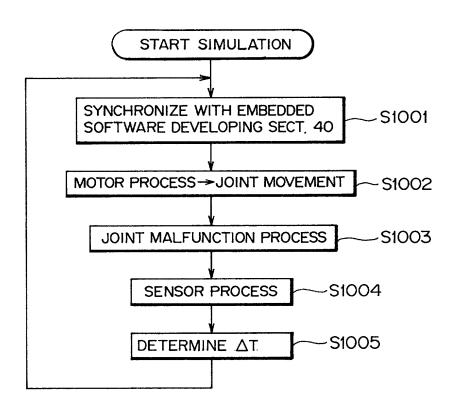


FIG. 46

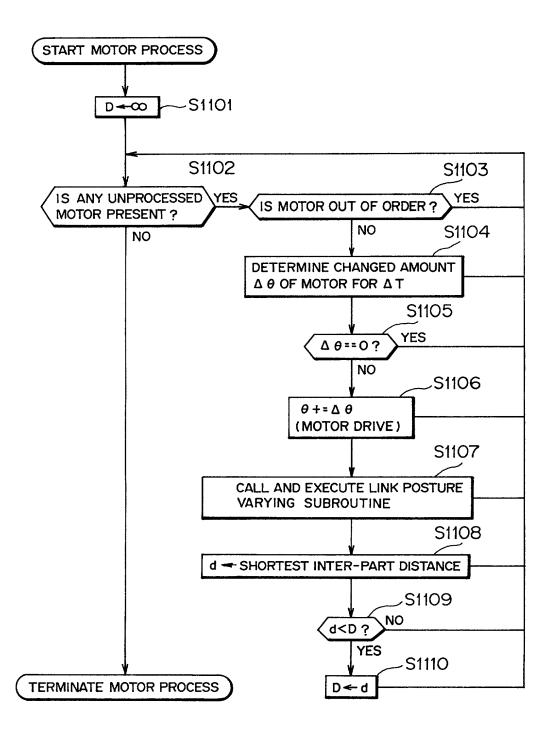


FIG. 47

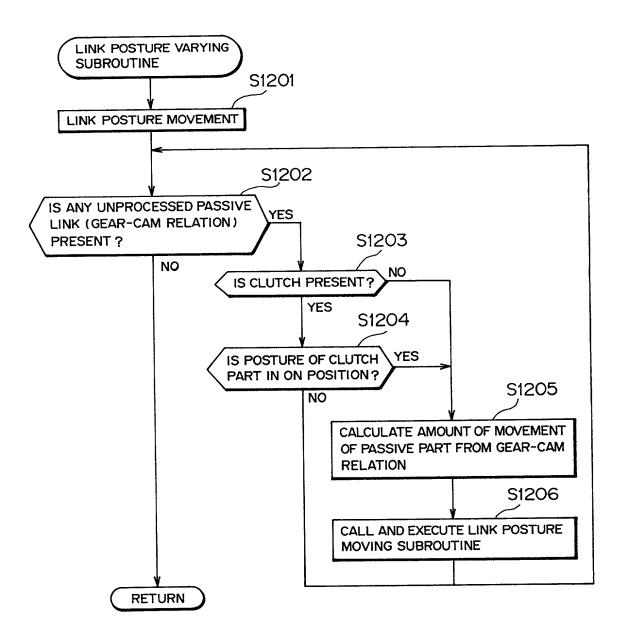


FIG. 48

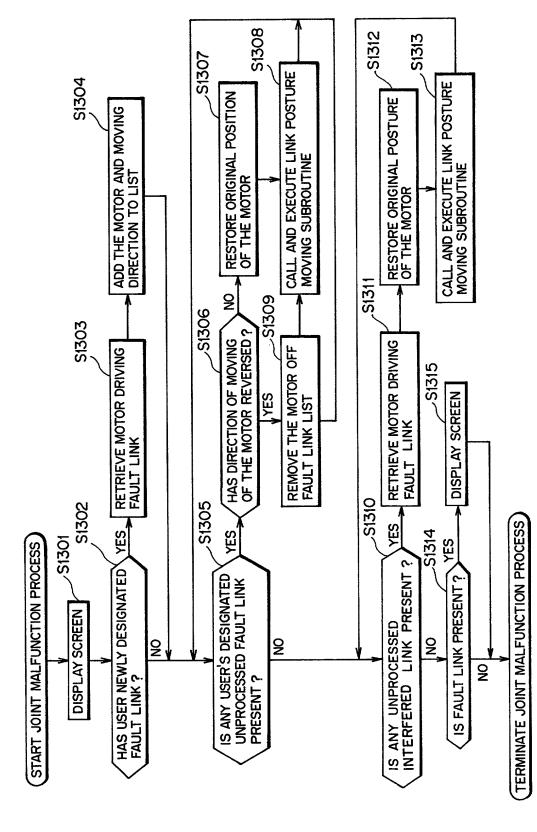


FIG. 49

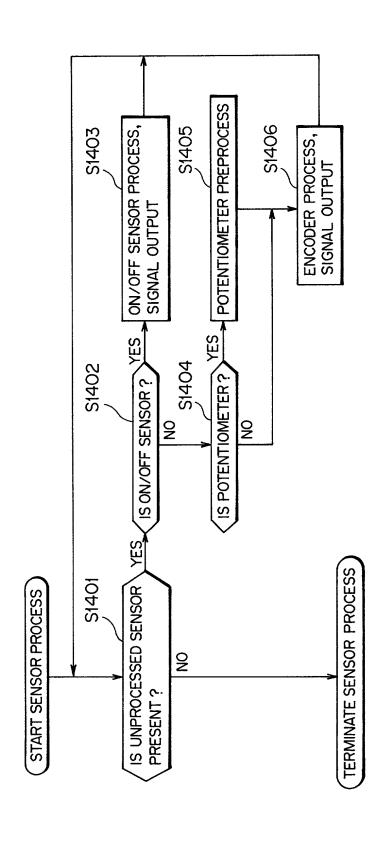


FIG. 50

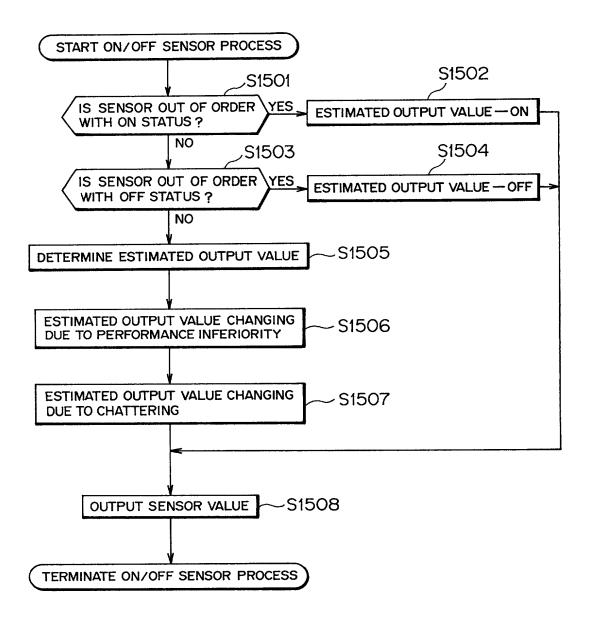


FIG. 51

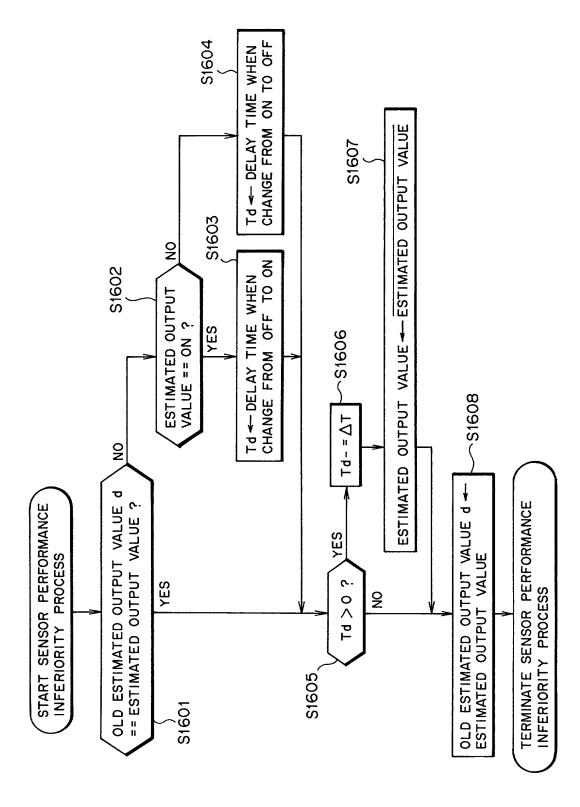


FIG. 52

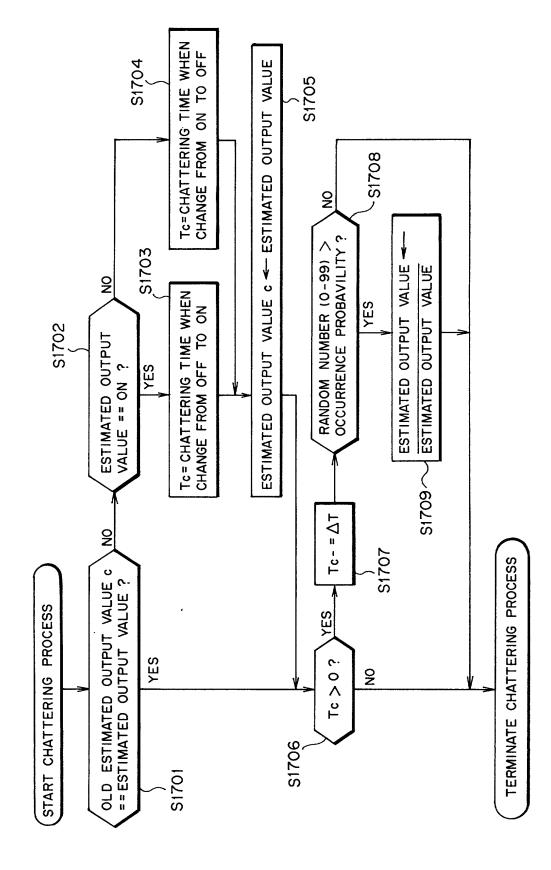
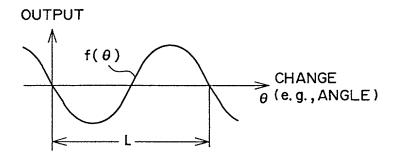


FIG. 53



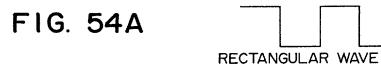


FIG. 54B SIGN WAVE

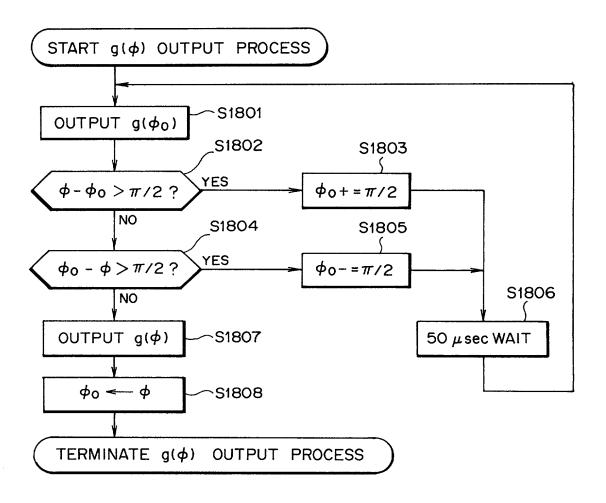
FIG. 54C TRIANGULAR WAVE

FIG. 54D

SAWTEETH WAVE (RIGHT SIDE UP)

FIG. 54E SAWTEETH WAVE (RIGHT SIDE DOWN)

FIG. 55



F1G. 56

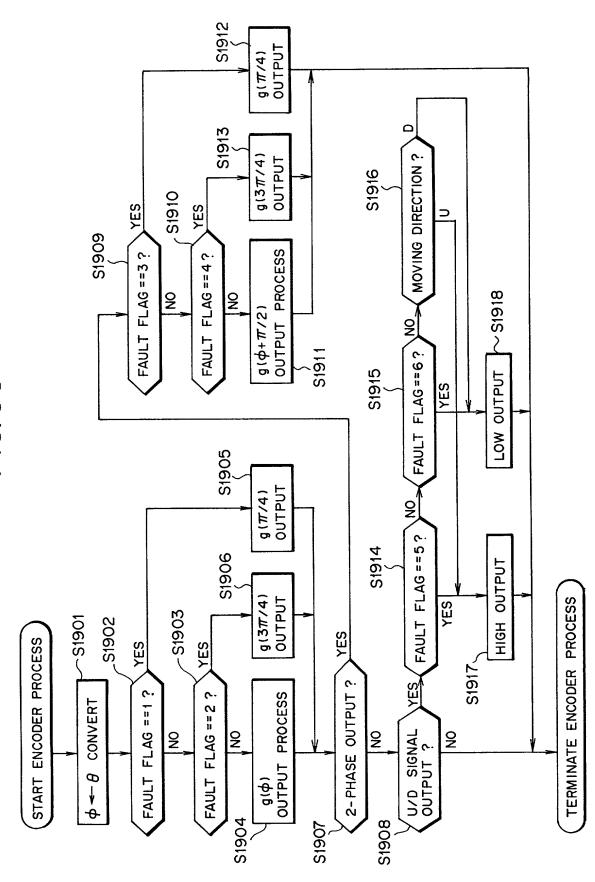


FIG.57

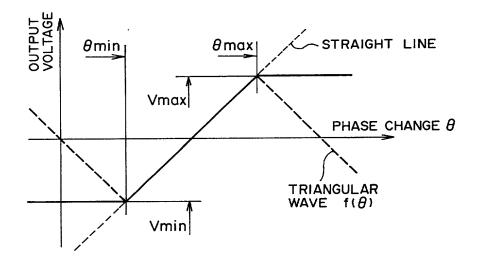


FIG. 58

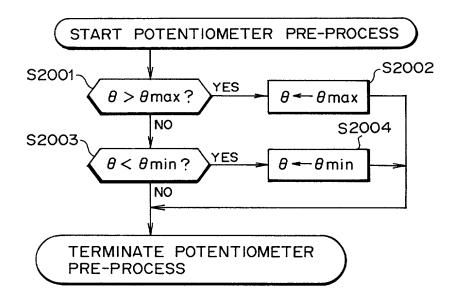
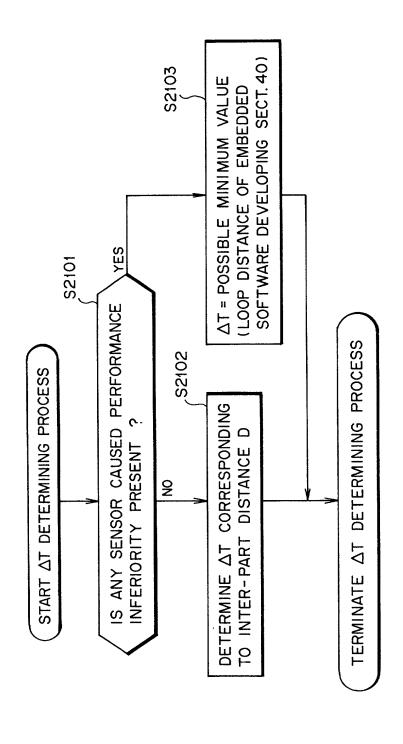


FIG. 59



F I G. 60A

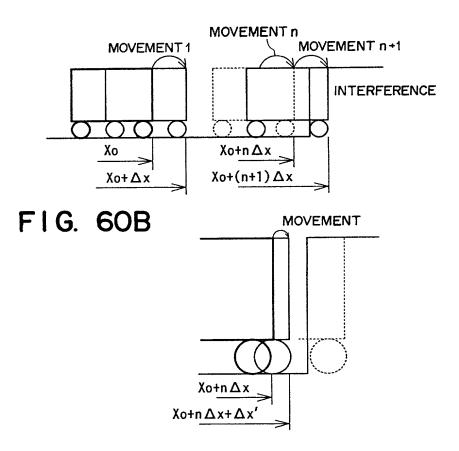


FIG. 61A

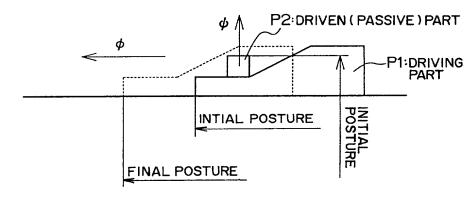


FIG. 61B

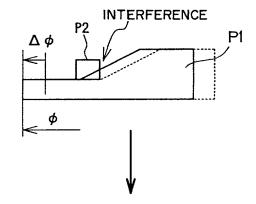


FIG. 61C

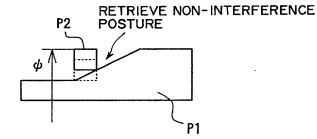
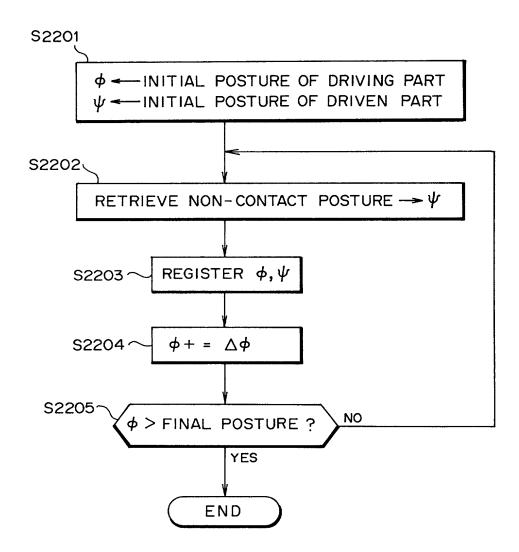
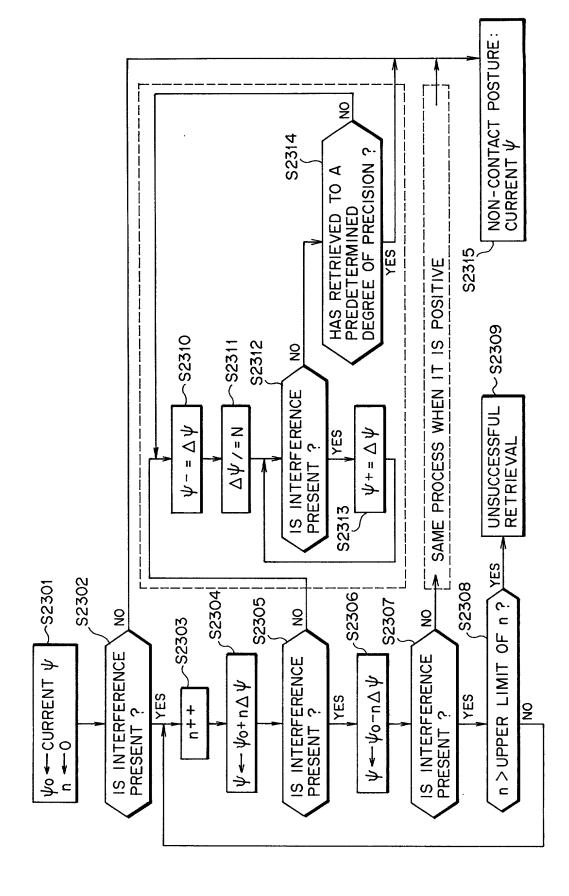


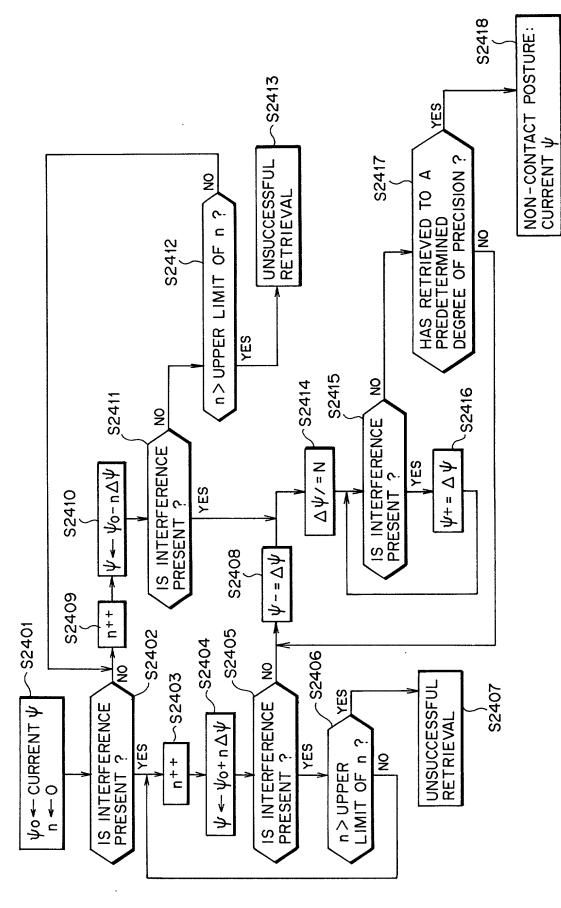
FIG. 62



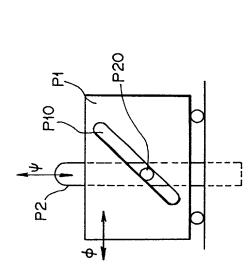
F16.63



F16.64

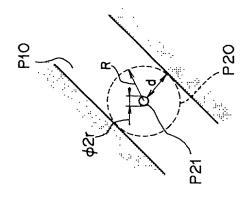


F1G. 65A



F1G. 65B

F16. 65C



P20

FIG. 66

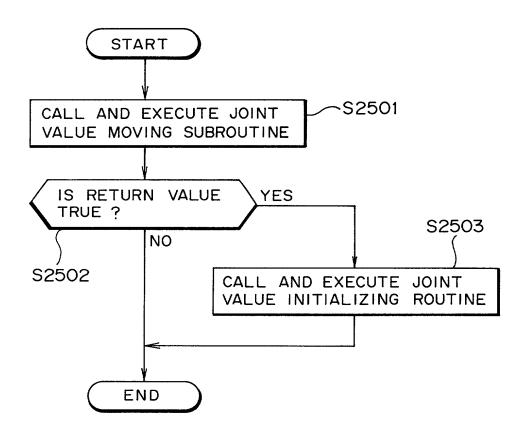


FIG. 67

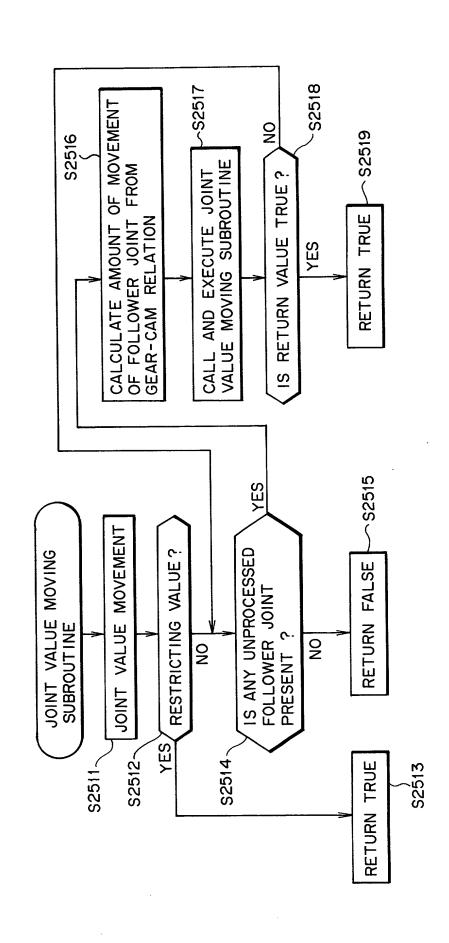


FIG.68

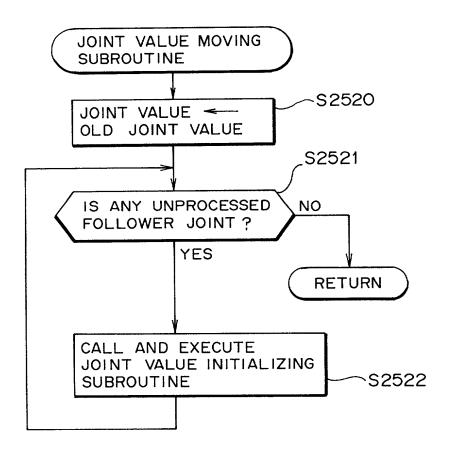


FIG. 69A

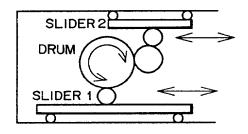


FIG. 69B

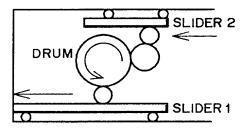


FIG. 69C

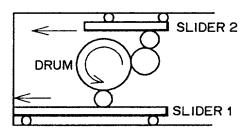
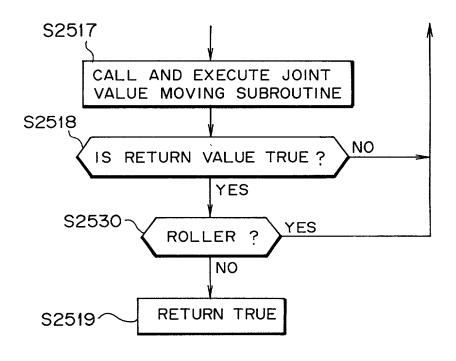
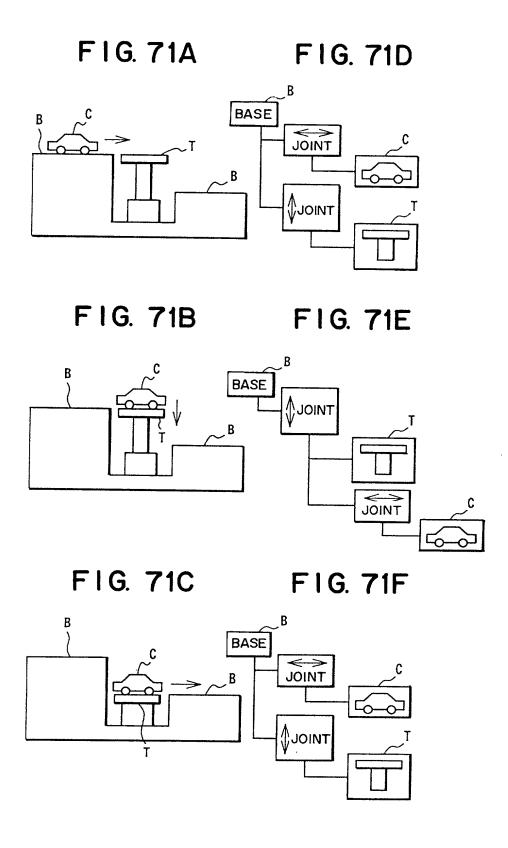


FIG.70





## FIG. 72

 $\mathbf{\omega}$ PARENT CANDIDATE

⋖

PARENT CANDIDATE

۵

CHILD PART

CHILD PART a

•1F JOINT  $\alpha$  IS IN THIS RANGE, •1F JOINT  $\beta$  IS IN THIS RANGE,

..... PARENT IS A.

·IF JOINT 7 IS IN THIS RANGE, ---- PARENT IS B.

·IF JOINT & IS IN THIS RANGE, ·IF JOINT & IS IN THIS RANGE, .... PARENT IS C.

• IF JOINT  $\eta$  IS IN THIS RANGE, • IF JOINT  $\theta$  IS IN THIS RANGE, .... PARENT IS D.

JOINT a

· INFLUENCE ON CHANGEOVER OF PARENT-CHILD RELATION OF CHILD PART a

·INFLUENCE ON CHANGEOVER OF PARENT-CHILD RELATION OF CHILD PART c

F16.73

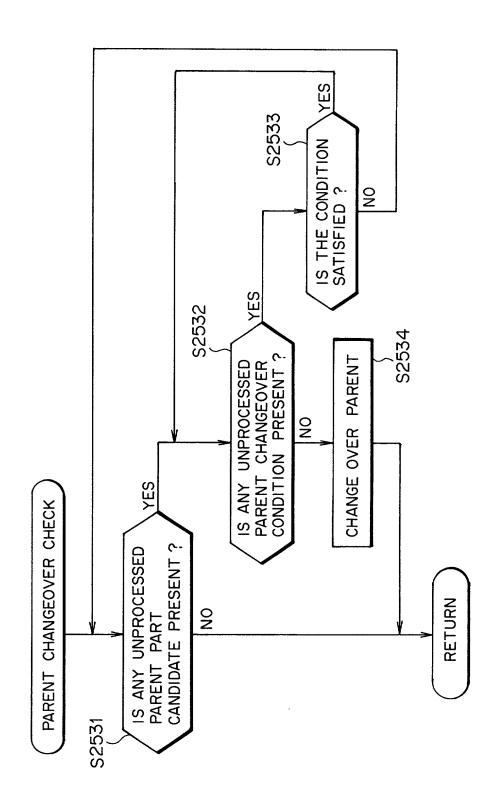


FIG. 74

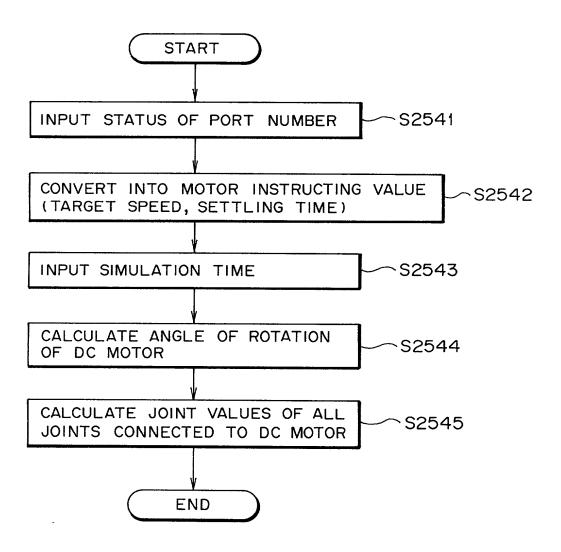
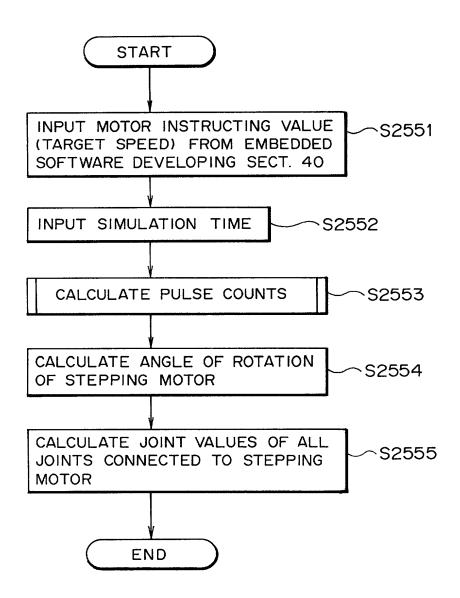


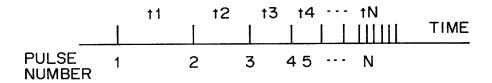
FIG. 75

|  | PORT<br>11 | NUMBER<br>12 | TARGET SPEED [deg/s] | SETTLING TIME [ms] |
|--|------------|--------------|----------------------|--------------------|
| MOTOR INSTRUCTIONS<br>CORRESPONDING TO<br>BIT STRING | 0          | 0            | 0                    | 0                  |
|  | 0          | 1            | +100                 | 500                |
|  | 1          | 0            | -100                 | 500                |
|  | 1          | 1            | 0                    | 0                  |

**FIG.76** 



#### FIG.77



N = NUMBER OF ACCELERATION STEPS  $Th[N] = \{t1,t2,t3 \cdots tN\}$ 

FIG.78

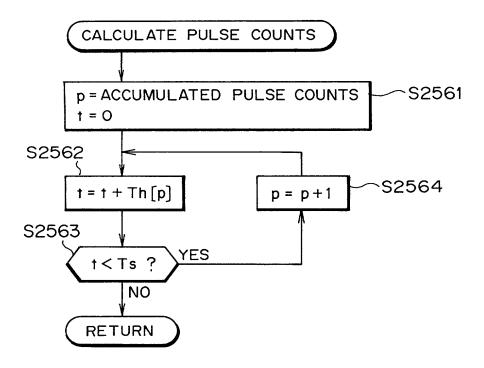


FIG. 79

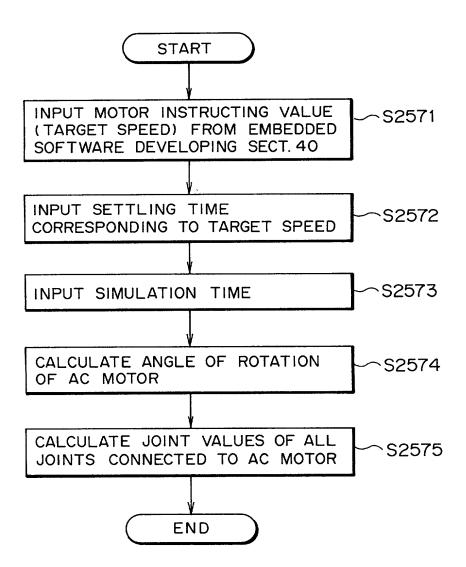


FIG.80

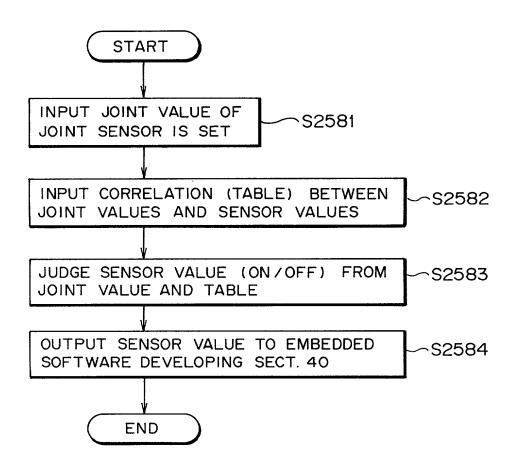


FIG. 81

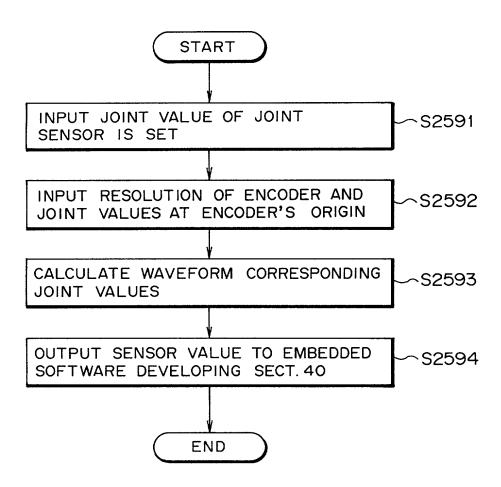


FIG. 82

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